

CLAIMS

What is claimed is:

1. A method of performing cell selection handoffs in a wireless communication system, wherein the wireless communication system includes a plurality of base stations in communication with at least one mobile station, wherein the base stations transmit information to the at least one mobile station via a forward link, and wherein the base stations receive information from the at least one mobile station via a reverse link, and wherein each base station is capable of gating off transmissions for selected time intervals, and wherein the at least one mobile station is capable of determining a strongest base station, and wherein the communication system is capable of performing soft handoffs, comprising the steps of:
 - a) determining a desired set of base stations;
 - b) gating off selected base stations based on the desired set of base stations that was determined during step (a); and
 - c) performing a soft handoff.
2. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) comprises determining a set of strong base stations within a mobile station active set.
3. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) comprises determining a set of strong base stations on a PCG basis.
4. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (b) comprises gating off all base stations except for the desired set of base stations.

5. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) comprises the following sub-steps:
- i) measuring carrier-to-interference ratios of all base stations in a mobile station active set; and
 - 5 ii) selecting a base station having a best signal to noise (E_b/N_t) to achieve a specified QoS to be a chosen base station of the desired set of base stations.
6. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) is performed by a mobile station.
7. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) comprises the following sub-steps:
- i) measuring a plurality of received pilot E_c/I_o values that represents a pilot E_c/I_o for each pilot in a mobile station active set;
 - 5 ii) averaging the plurality of received pilot E_c/I_o values; and
 - iii) selecting a base station having a best pilot E_c/I_o value to be a chosen base station of the desired set of base stations.
8. The method of performing cell selection handoffs as defined in Claim 7, wherein the averaging sub-step (ii) is implemented by hardware.
9. The method of performing cell selection handoffs as defined in Claim 7, wherein the averaging sub-step (ii) is implemented by software.
10. The method of performing cell selection handoffs as defined in Claim 7, wherein the averaging sub-step (ii) is performed by a filter.
11. The method of performing cell selection handoffs as defined in Claim 10, wherein the averaging sub-step (ii) is performed by an IIR filter.

12. The method of performing cell selection handoffs as defined in Claim 10, wherein the averaging sub-step (ii) is performed by an FIR filter.
13. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (b) comprises transmitting a gate off message to all base stations in a mobile station active set except for the desired set of base stations.
14. The method of performing cell selection handoffs as defined in Claim 1, wherein the gate off message is transmitted via a feedback channel.
15. The method of performing cell selection handoffs as defined in Claim 14, wherein the feedback channel has a length of one to several PCG.
16. The method of performing cell selection handoffs as defined in Claim 14, wherein the feedback channel has a rate ranging between 200 Hz and 1600 Hz.
17. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (a) comprises the following sub-steps:
 - i) continuously determining channel condition estimate for each base station in a mobile station active set;
 - ii) continuously sorting the channel condition estimates by strength; and
 - iii) continuously determining whether a strongest channel condition estimate is greater than a threshold parameter.
18. The method of performing cell selection handoffs as defined in Claim 17, wherein the determining sub-step (i) utilizes a sum of all usable multipath signals to estimate channel conditions.

19. The method of performing cell selection handoffs as defined in Claim 17, wherein the estimating sub-step (i) averages the continuous channel condition estimate during uncertainty periods.

20. The method of performing cell selection handoffs as defined in Claim 17, wherein the threshold parameter of the determining sub-step (iii) is defined by the following equation:

$$T_QOS_dB = FPC_FCH_SETPT + \Delta\chi .$$

21. The method of performing cell selection handoffs as defined in Claim 20, wherein the determining sub-step (iii) further comprises selecting additional continuous channel condition estimates until a combination of strong continuous channel condition estimates is greater than the threshold parameter.

22. The method of performing cell selection handoffs as defined in Claim 20, wherein the determining sub-step (iii) further comprises selecting additional continuous channel condition estimates until $SUM_PILOTS > T_QOS_dB$ occurs, where SUM_PILOTS is a combined received power from all received pilots from a desired set of base stations in a mobile station active set.

23. The method of performing cell selection handoffs as defined in Claim 1, wherein the step (b) comprises the following sub-steps:

- i) selecting a desired set of base stations to transmit during PCG_{N+2} ; and
- ii) gating off all remaining BSs in the active set.

5

24. An apparatus for performing cell selection handoffs in a wireless communication system, wherein the wireless communication system includes a plurality of base stations in communication with at least one mobile station, wherein the base stations transmit information to the at least one mobile station via a forward link, and wherein the base stations receive information from the at least one mobile station via a reverse link, and wherein each base station is capable of gating off transmissions for selected time intervals, and wherein the at least one mobile station is capable of determining a strongest base station, and wherein the communication system is capable of performing soft handoffs, comprising the steps of:

- a) means for determining a desired set of base stations;
- b) means, responsive to the determining means, for gating off selected base stations based on the desired set of base stations that was determined by the determining means; and
- c) means, responsive to the gating off means, for performing a soft handoff.

25. A computer program executable on a general purpose computing device, wherein the program is capable of performing cell selection handoffs in a wireless communication system, wherein the wireless communication system includes a plurality of base stations in communication with at least one mobile station, wherein the base stations transmit information to the at least one mobile station via a forward link, and wherein the base stations receive information from the at least one mobile station via a reverse link, and wherein each base station is capable of gating off transmissions for selected time intervals, and wherein the at least one mobile station is capable of determining a strongest base station, and wherein the communication system is capable of performing soft handoffs, comprising the steps of:

- a) a first set of instructions for determining a desired set of base stations;
- b) a second set of instructions for gating off selected base stations based on the desired set of base stations that was determined during the first set of instructions; and
- c) a third set of instructions for performing a soft handoff.